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REMARKS

Claims 1-16 are pending in the application. Claims 2, 6, 10 and 14 have been canceled. Claims 1, 3, 4, 5, 7, 8, 9, 11, 12, 13, 15, and 16 have been amended herein. Favorable reconsideration of the application, as amended, is respectfully requested.

I. AMMENDMENTS TO THE SPECIFICATION

One paragraph of the Specification is amended to replace update the references to applications from which the present application depends. The amendment includes no new matter.

II. CLAIM OBJECTIONS

Claims 3 and 11 are objected to due to informalities. The informalities have been corrected.

III. REJECTION OF CLAIMS UNDER 35 USC § 103

Claims 1-2 and 9-10 stand rejected under 35 USC 103(a) as being unpatentable over US Published Application 2002/0048268 A1 to Menon et al. and US Published Application 2002/0161576 to Benyassine et al. in view of US Patent 6,873,627 to Miller et al.

Claims 3-5 and 11-13 stand rejected under 35 USC 103(a) as being unpatentable over Menon et al., Benyassine et al., and Miller et al. in further view of US Patent 6,717,938 to D'Angelo.

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Claims 6-8 and 14-16 stand rejected under 35 USC 103(a) as being unpatentable over Menon et al., Benyassine et al., Miller et al. and D'Angelo in further view of US Patent 6,785,274 to Mahajan.

General discussion of applicant's Invention.

As stated in the background of the applicant's application, traditional telephony systems known as "key switch" system consist of a central key switch unit and a plurality of desk top telephones. The key switch unit is coupled to the public switched telephone company central office utilizing trunk lines.

Each telephone is coupled to the key switch unit by a subscriber loop, typically called an extension or an extension line, running from the telephone to the key switch unit. The subscriber loop typically utilizes plain old telephone service (POTS) signaling.

Each telephone includes a plurality buttons. Each button is associated with one of the trunk lines to the central office or one of the other extensions. When the trunk line is in use, an indicator associated with the button (associated with the trunk line) is illuminated to indicate to the operator that the trunk line. When one of the other extensions is in use, the illuminator associated with the button (associated with such other extension) is illuminated to indicate that such other extension is in use.

When an operator desires to call another extension, he or she may activate the button associated with the extension. When the operator desires to make an "outside call", he or she must activate a button associated with an outside telephone line – to connect to the outside telephone line prior to dialing the desired telephone number.

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The applicant's invention relates to emulating this traditional key switch system functionality in a VoIP telephony system. It is well known that in a VoIP telephony system, each telephone is coupled to an IP network. A gateway, or control unit, may also be coupled to the IP network and form a bridge to a telephony service provider network. Each telephone and the gateway are assigned an IP address unique on the network and VoIP communication sessions are signaled, set up, utilizes for audio communication, and torn down utilizing such standards as Session Initiation Protocol (SIP).

Communications are on a peer-to-peer basis, meaning that unlike a traditional key switch system, communications do not necessarily pass through the control unit. For this reason, the gateway of a VoIP system can not control line status indicators on each telephone as the central key switch unit does in a traditional key switch system.

Therefore, the applications invention relates to a novel use of IP multicast protocols for operation of line status indicators in a VoIP telephony system for purposes of emulating traditional key switch system functionality.

Menon

Menon relates to a wireless network system that supports both packet data and may be used as a telephony service provider network. Menon does not disclose a user interface for telephony stations within a VoIP telephony system. Menon does not disclose control of line status indicators on the user interface of telephony systems or control thereof. Menon does not disclose use of IP multicast protocols for control of such line status indicators.

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Benyassine

Benyassine discloses a speech coding system with a music classifier. Benyassine does not disclose a user interface for telephony stations within a VoIP telephony system. Menon does not disclose control of line status indicators on the user interface of telephony systems or control thereof.

Miller

Miller discloses a system and method for sending packets over a computer network. In more detail, Miller discloses a system for making IP multicast useful in a network that is otherwise non - IP multicast enabled.

Miller does not disclose a user interface for telephony stations within a VoIP telephony system. Miller does not disclose control of line status indicators on the user interface of telephony systems or control thereof. Miller does not disclose use of IP multicast protocols for control of such line status indicators.

D'Angelo

D'Angelo discloses a system for controlling use of a communication channel. In one aspect, D'Angelo discloses a conference call system that calls individual participants. The conference call system may further generate status messages for notifying other conference call participants of the status of parties to the call "on-hook", "off hook", and ringing.

D'Angelo does not disclose use of IP multicast protocols for control of such line status indicators.

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Mahajan.

Mahajan discloses an efficient network switching apparatus and method for supporting IP multicast.

Mahajan does not disclose a user interface for telephony stations within a VoIP telephony system. Mahajan does not disclose control of line status indicators on the user interface of telephony systems or control thereof. Mahajan does not disclose use of IP multicast protocols for control of such line status indicators.

Claim 1

Claim 1, as amended, is directed to a VoIP telephony system comprising a control unit and a plurality of telephony stations interconnected by a packet switched network. The control unit may be coupled to a telephony service provider network by a plurality of outside telephone lines.

A first of the telephony stations comprises a network interface for communicating over the packet switched network and means for establishing a logical channel to support a media session over the packet switched network with an endpoint for the exchange of real time streaming media with the endpoint during a media session. The endpoint is selected from the group of endpoints consisting of the control unit and another of the plurality of telephony stations.

The first telephony station further includes means for receiving microphone input and generating compressed digital audio frames representative thereof for transmission to the endpoint during the media session and for receiving compressed digital audio frames from the endpoint and driving a speaker to output audio in response thereto.

A user interface comprises a plurality of indicators. Each indicator is associated with one of a plurality of selection buttons. At least one of the plurality of

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indicators is associated with one of the plurality of outside telephone lines. The indicator indicates a status of such outside telephone line. The status is one of "available" and "in-use".

The selection button associated with such indicator is effective to initiate a real time communication session to a remote device utilizing such outside telephone line when activated by a user.

A status application comprises a multicast client. The multicast client: i) obtains a multicast group address of a multicast group associated with the control unit; ii) joins the multicast group; and iii) updates the status of the indicator associated with the outside telephone line between the "available" and "in-use" status in response to receiving a multicast status message addressed to the multicast group address and identifying the outside telephone line and its status.

Neither Menon et al., Benyassine et al., Miller et al., D'Angelo nor Mahajan, nor the other art of record, alone or in combination, disclose such features.

Claim 3

Claim 3, as amended, is directed to the telephony system of claim 1, wherein at least one of the plurality of indicators on the first telephony station is associated with a second of the plurality of telephony stations. The indicator indicates a status of such second of the plurality of telephony stations. The status is one of "on-hook" and "off-hook".

The selection button associated with such indicator is effective to initiate a real time communication session to such second of the plurality of telephony stations when activated by a user.

The status application updates the status of the indicator associated with the second of the plurality of telephony stations between the "on-hook" and "off-hook" status in response to receiving a multicast status message addressed to the

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multicast group address and identifying the second of the plurality of telephony stations.

Claim 4

Claim 4, as amended, is directed to the telephony system of claim 3, wherein the status application of the first telephony station further comprises a multicast host.

The multicast hosts sends a multicast status message addressed to the multicast group address. The multicast status message identifies the first of the telephony stations and includes an indication of the status of the first of the telephony stations, the status being one of "on-hook" and "off-hook".

Claim 5

Claim 5, as amended, further defines that the multicast group address is IP multicast address distinct from an IP address of the control unit, an IP address of the first of the telephony stations, and an IP address of the second of the telephony stations.

Claim 7

Claim 7, as amended, further defines that the multicast host further sends a multicast status message in response to passage of time, even if there has been not change in status of the first of the telephony stations.

Claim 8

Claim 7, as amended, further defines that the multicast host further sends a multicast status message in response to receipt of a status refresh request on the multicast group address.

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Claim 9

Claim 9, as amended is directed to a method of operating a telephony system comprising a control unit and a plurality of telephony stations interconnected by a packet switched network. The control unit is coupled to a telephony service provider network by a plurality of outside telephone lines. A first of the telephony stations comprises a user interface comprising a plurality of indicators. Each indicator is associated with a selection button and at least one of the plurality of indicators is associated with one of the outside telephone lines.

The method of operating such telephony system comprises a method of providing notice of a status of such one of the outside telephone lines. The method comprises: i) obtaining a multicast group address of a multicast group associated with the control unit; ii) joining the multicast group; and iii) updating the status of the indicator associated with the outside telephone line between a status of "available" and a status of "in-use" in response to receiving a multicast status message addressed to the multicast group address and identifying the outside telephone line and its status.

Claims 11, 12, 13, 15, and 16

Claims 11, 12, 13, 15, and 16 are method claims which depend from claim 9 and can be distinguished over the prior art for at least the same reasons.

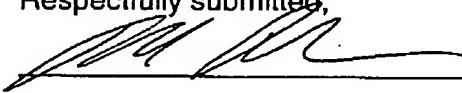
V. CONCLUSION

Accordingly, claims 1, 3, 4, 5, 7, 8, 9, 11, 12, 13, 15, and 16 are believed to be allowable and the application is believed to be in condition for allowance. A prompt action to such end is earnestly solicited.

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Should the Examiner feel that a telephone interview would be helpful to facilitate favorable prosecution of the above-identified application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Respectfully submitted,



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